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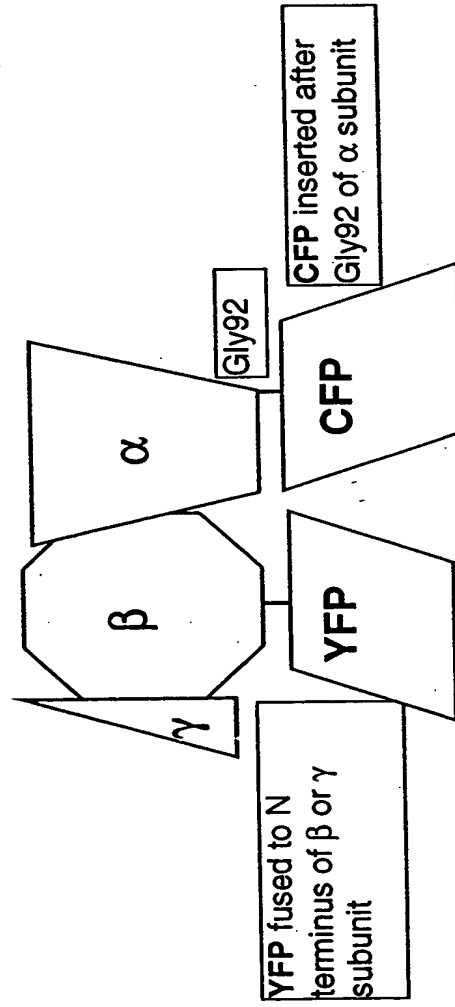
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Fig. 1

# G Protein Biosensor



**Activation/deactivation of G protein Biosensor in Biosensor Cell provides FRET Signal Response**

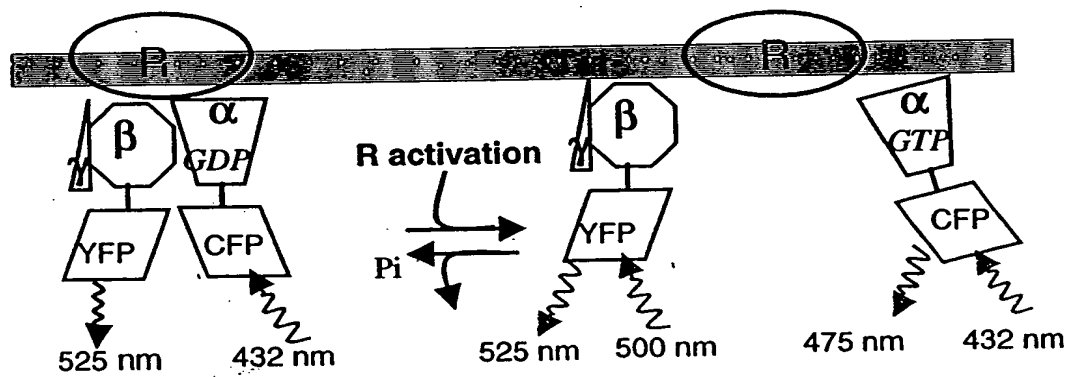


Fig. 2

Fig. 3

## Operation of G Protein Biosensor Cell

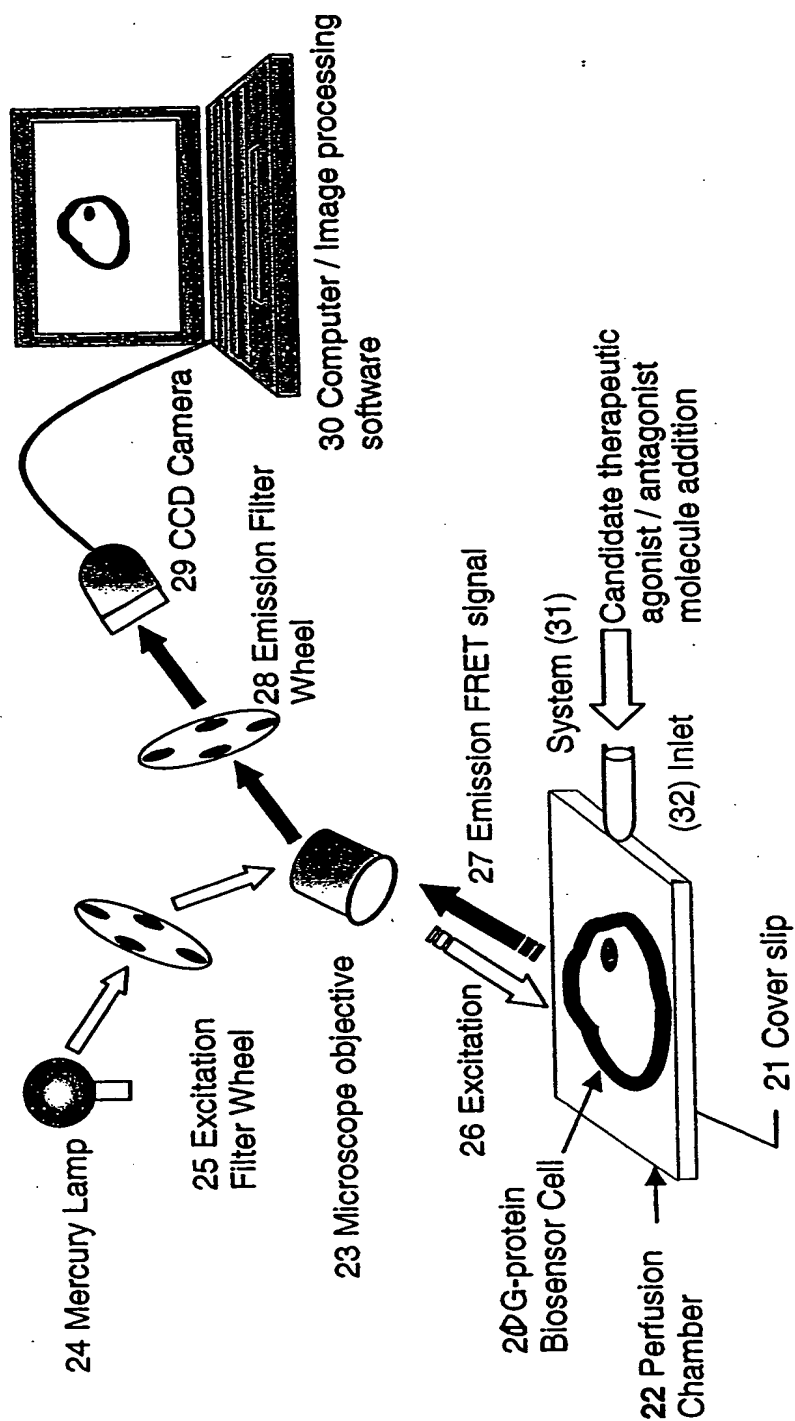


Fig. 4

Images of Fluorescence Emission from Biosensor Cells excited  
with Defined Spectra

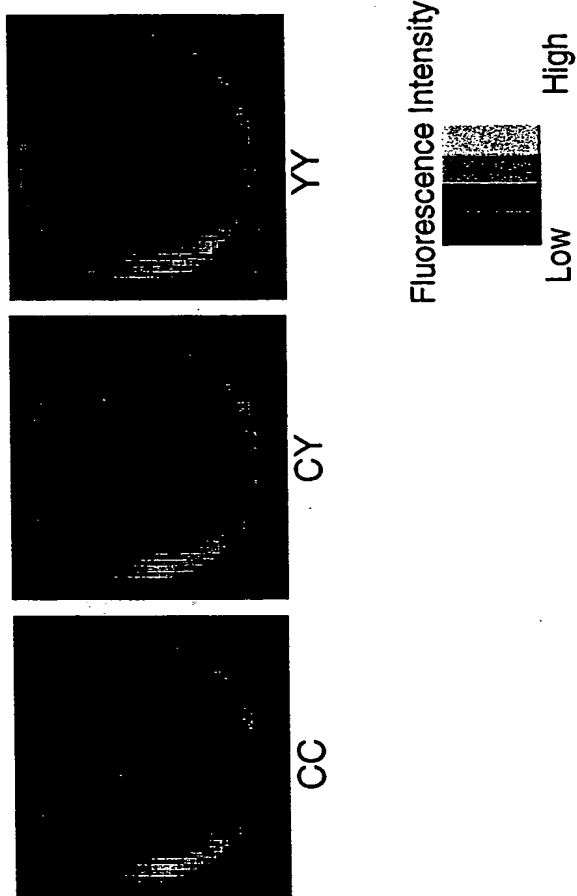


Fig. 5

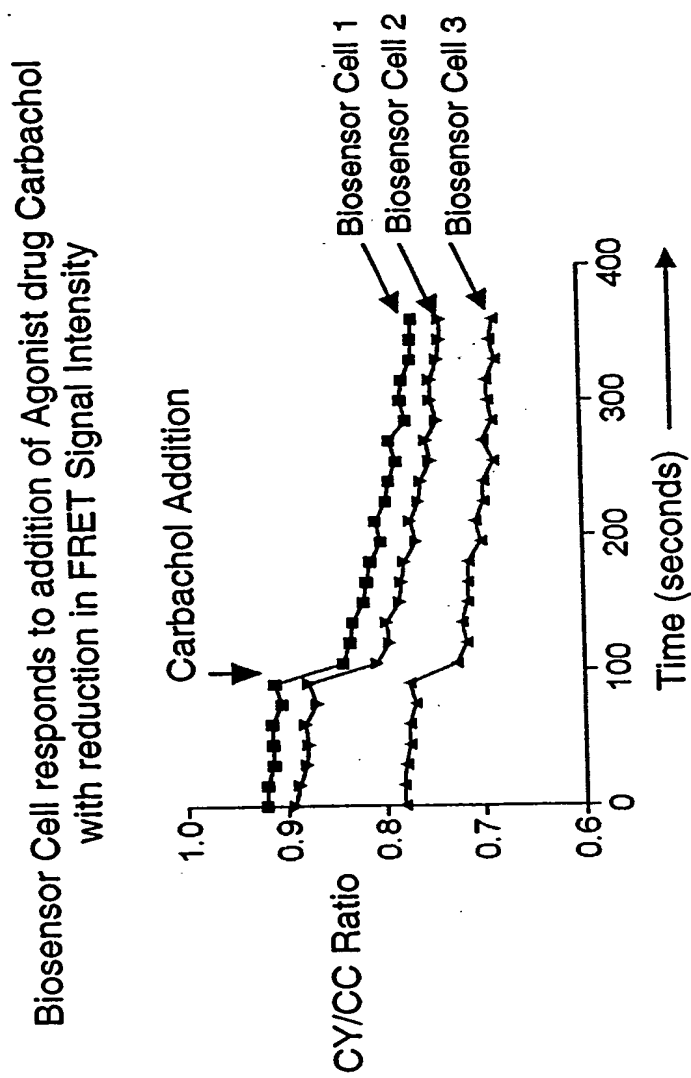


Fig. 6

Biosensor Cell responds to increasing concentrations of Agonist  
with corresponding decreases in FRET Signal Intensity

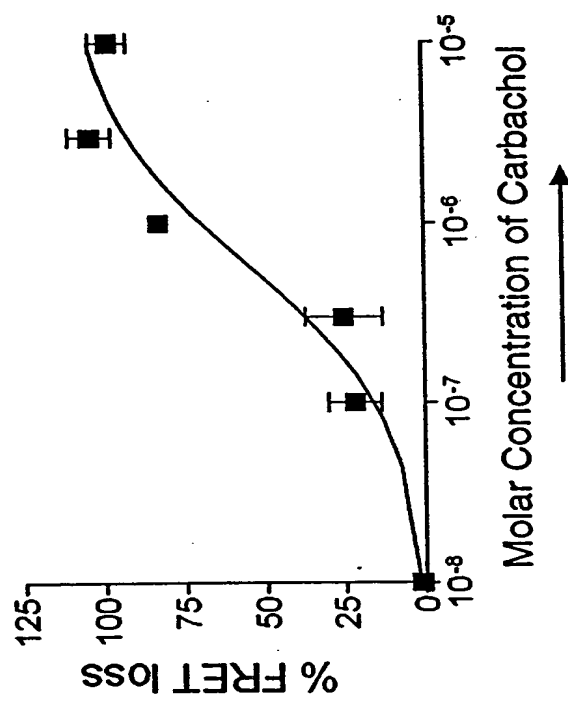


Fig. 7

Biosensor Cell does not respond to unrelated drug Isoproterenol

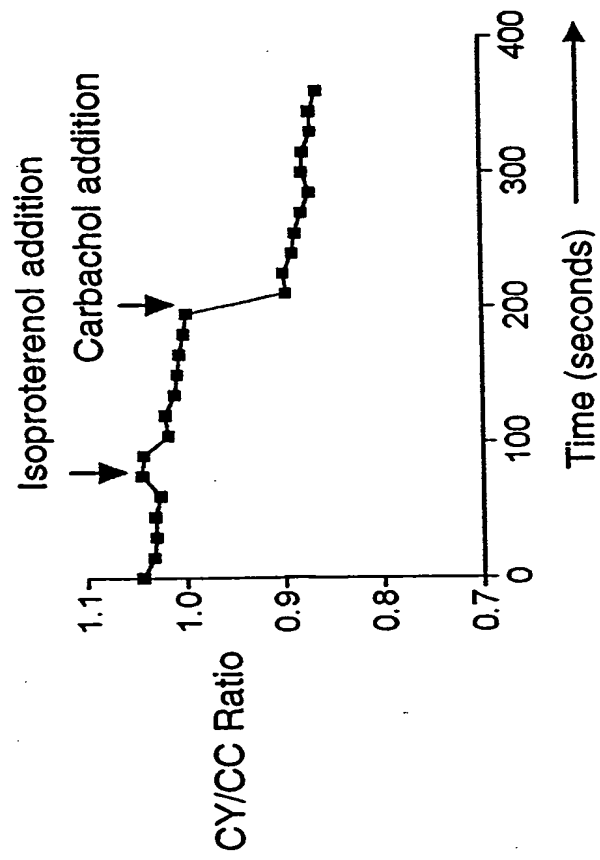




Fig. 8

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Biosensor Cell response to Agonist drug action is inhibited by Antagonist drug

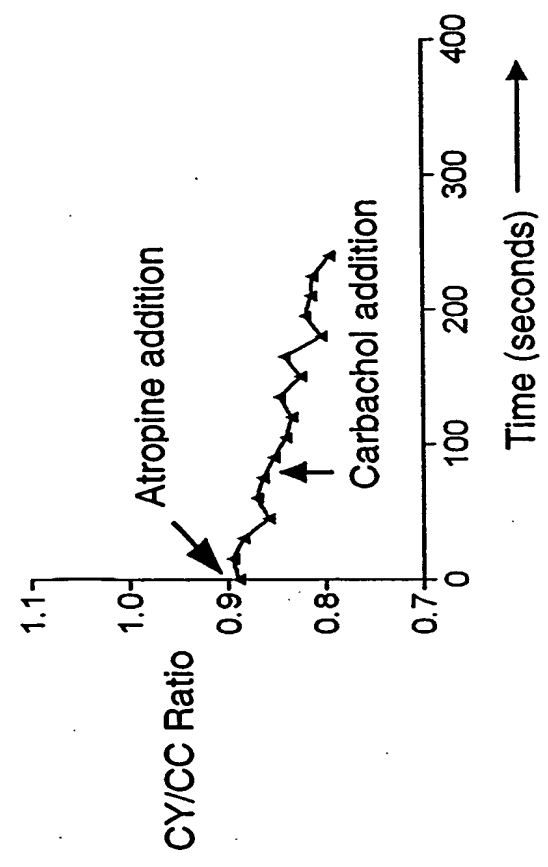


Fig. 9

Biosensor Cell responds to sequential addition of  
Agonist and Antagonist with predicted changes in FRET  
Signal Intensity

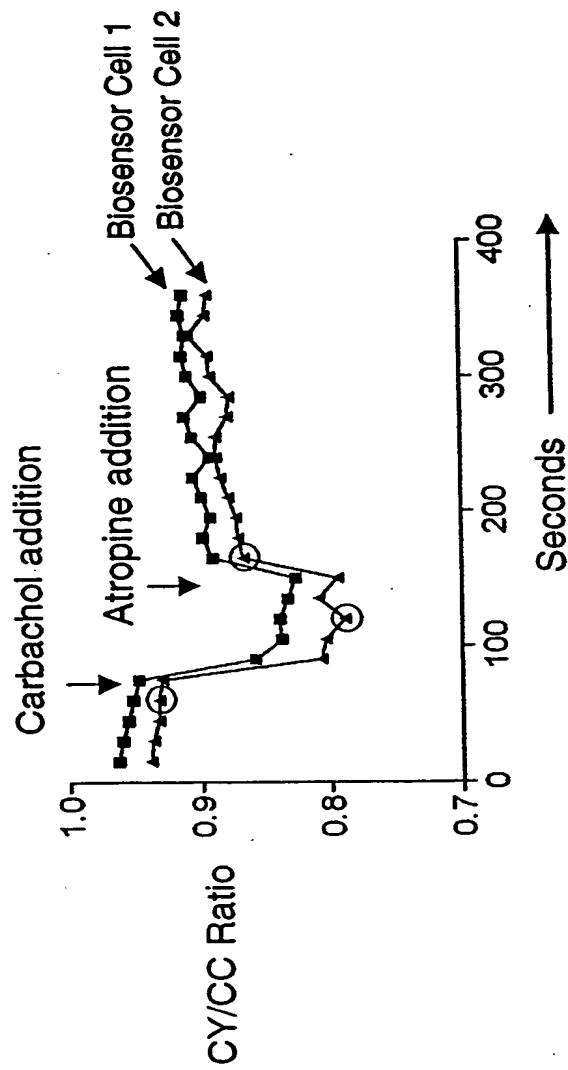


Fig. 10

Biosensor Cells respond to Agonist drug and Antagonist drug  
with predicted changes in CC and CY emissions

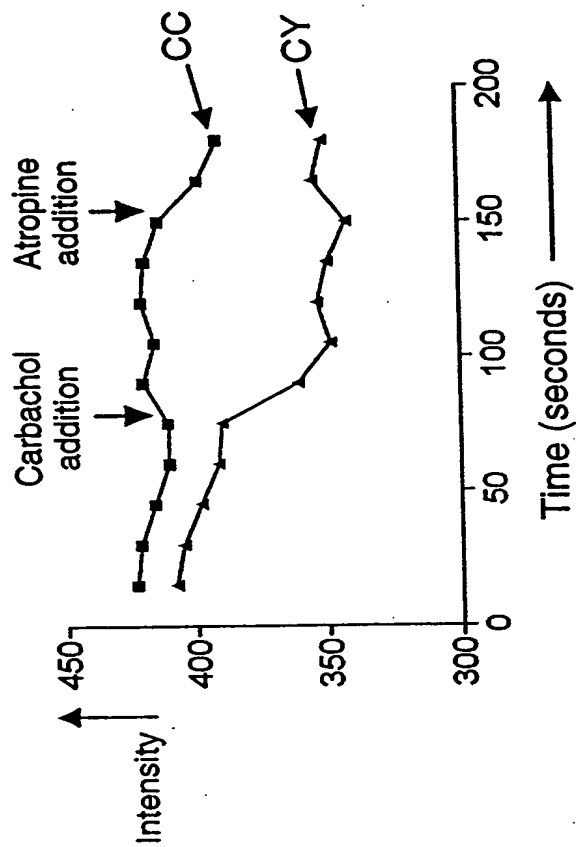


Fig 11

FRET Signal Intensity is Reduced in Parts of Biosensor Cell by Agonist Drug and Increased by Antagonist Drug

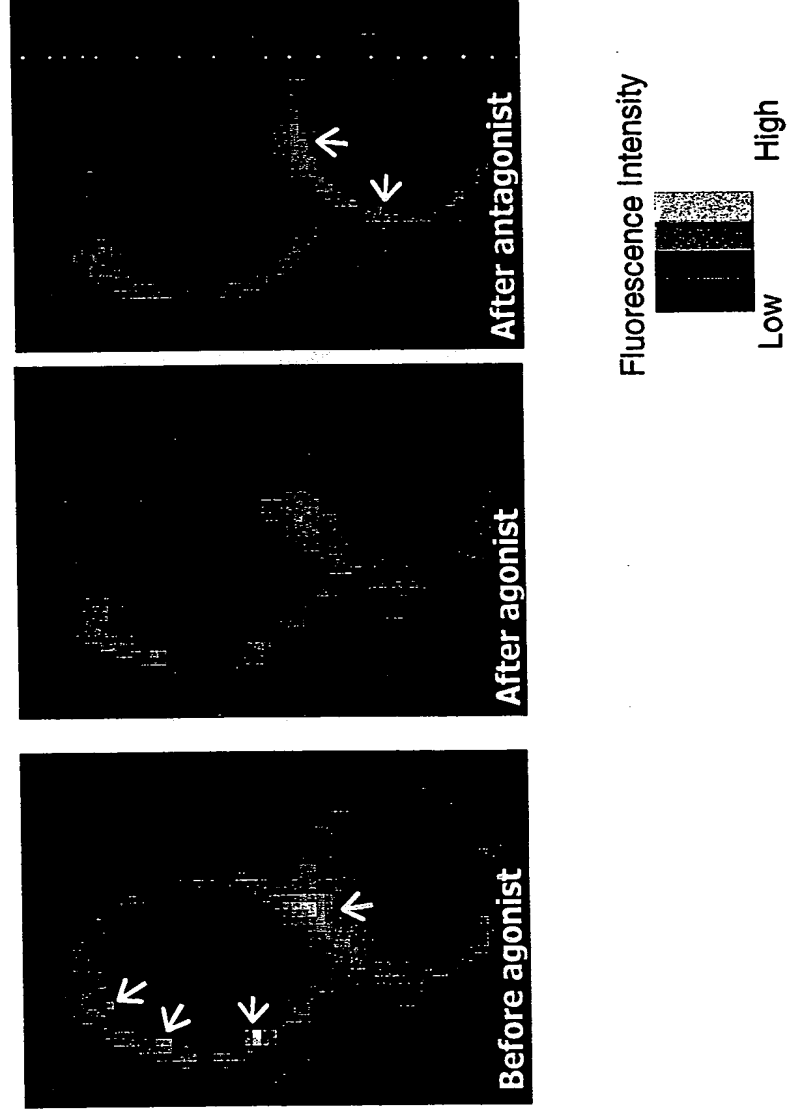


Fig. 12

Biosensor Cell responds to addition of Agonist  
Neurotransmitter Serotonin with decrease in FRET  
Signal Intensity

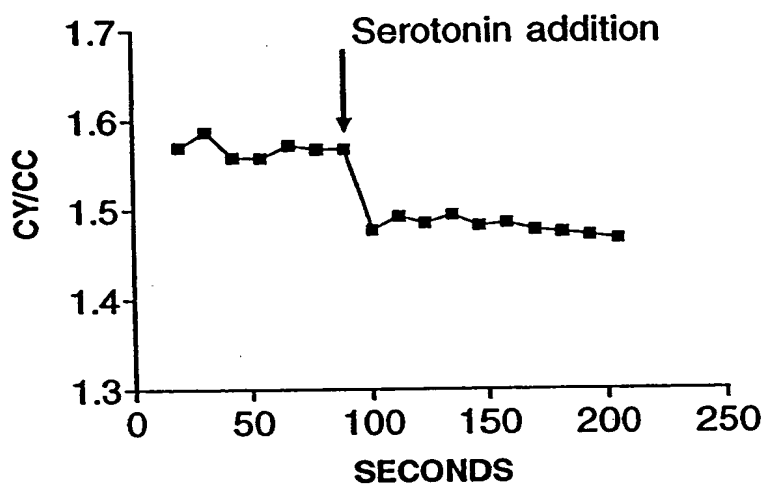


Fig. 13

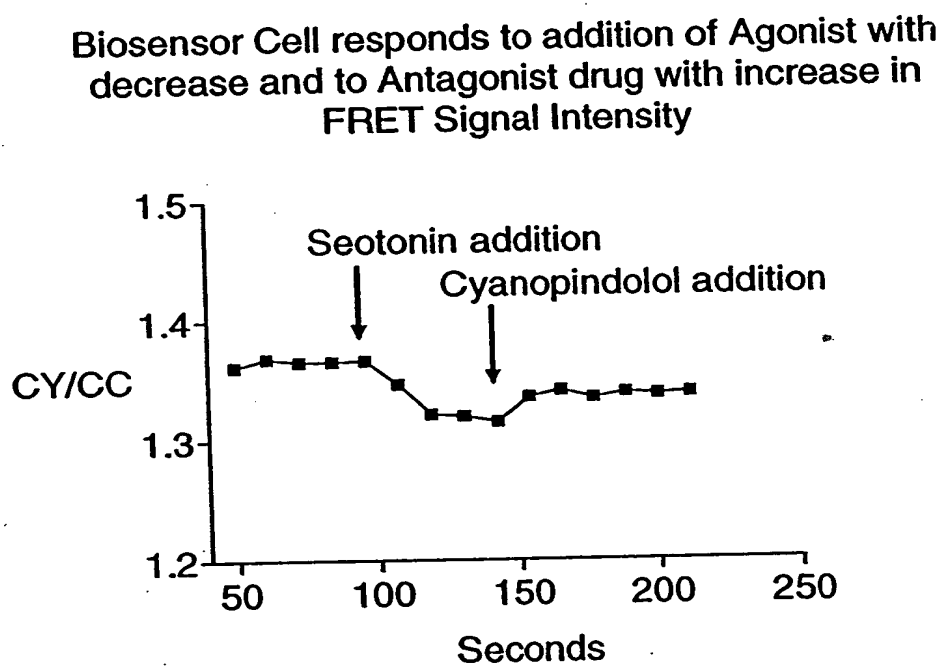


Fig. 14

Biosensor Cell responds to addition of Agonist Drug Adenosine N6-Cyclohexyl. with decrease in FRET Signal Intensity

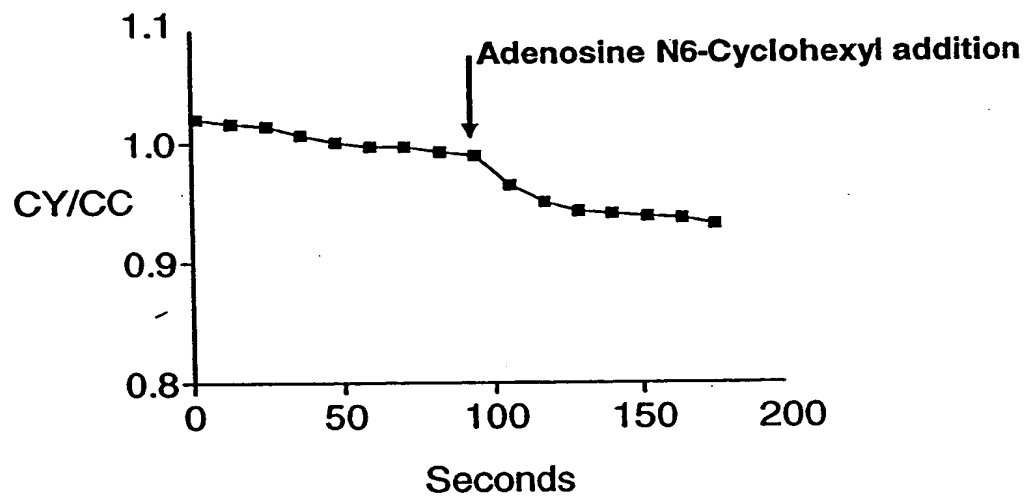


Fig. 15

Biosensor Insect Cell responds to addition of Agonist Drug  
Carbachol with decrease in FRET Signal Intensity

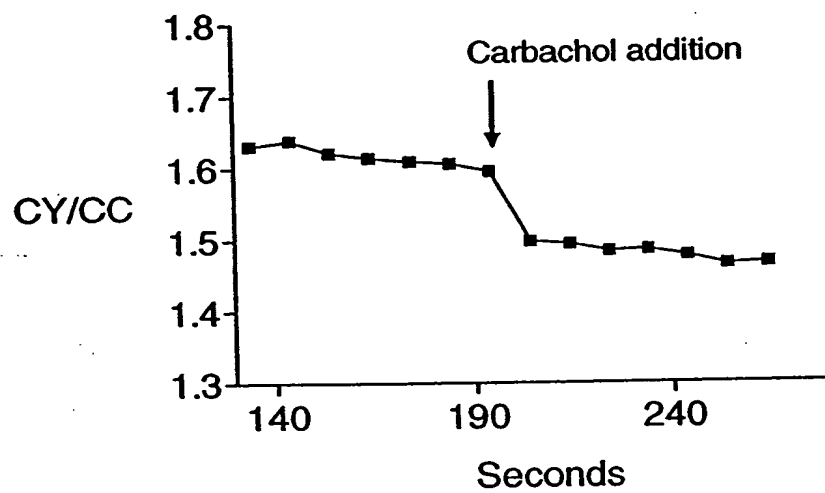




Fig. 16

Biosensor cells containing  $\alpha$ -CFP  $\beta$   $\gamma$ -YFP respond as predicted to addition of Agonist drug Carbachol

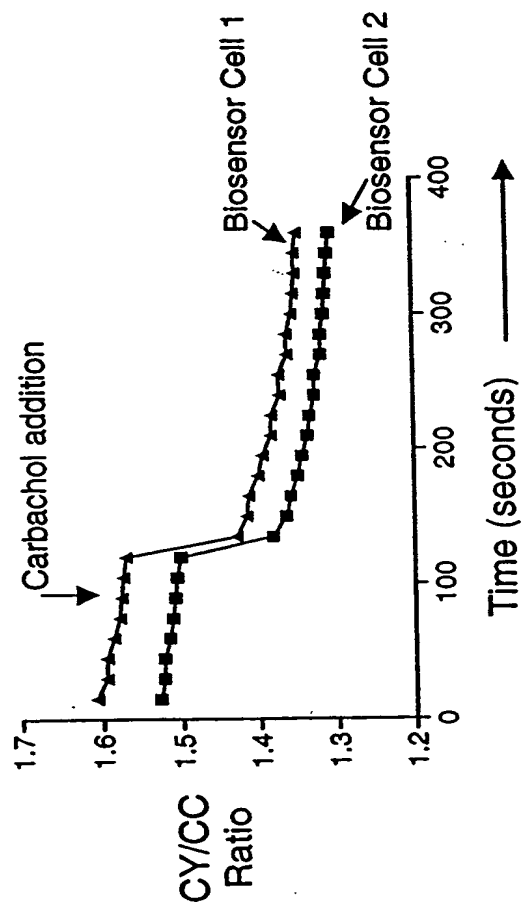


Fig. 17

## Operation of G protein Biosensor Cell

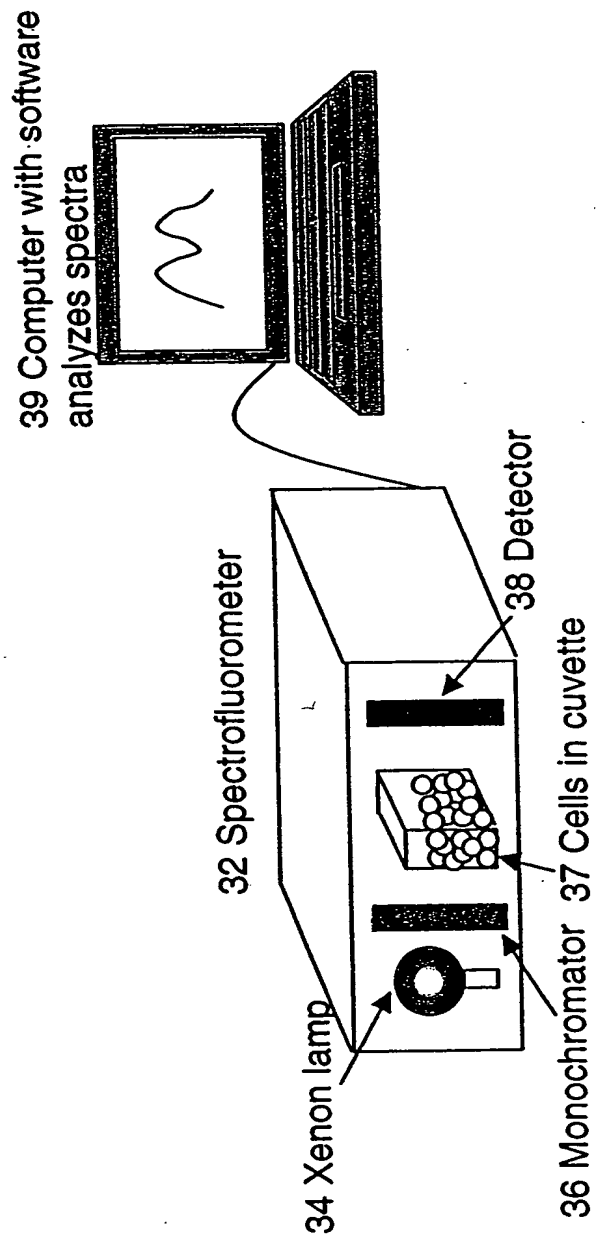


Fig. 18

Fluorometric spectra from Biosensor cells and cells expressing biosensor component proteins

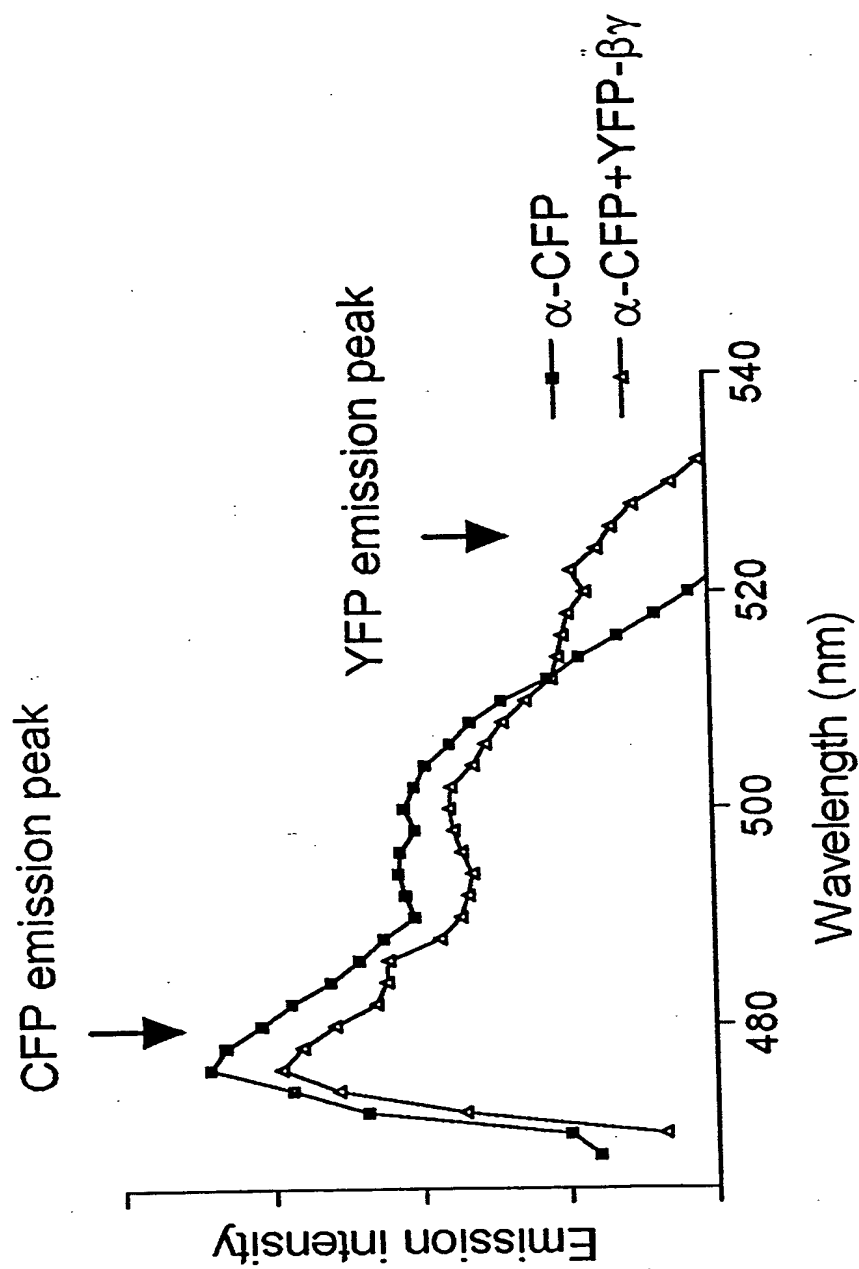
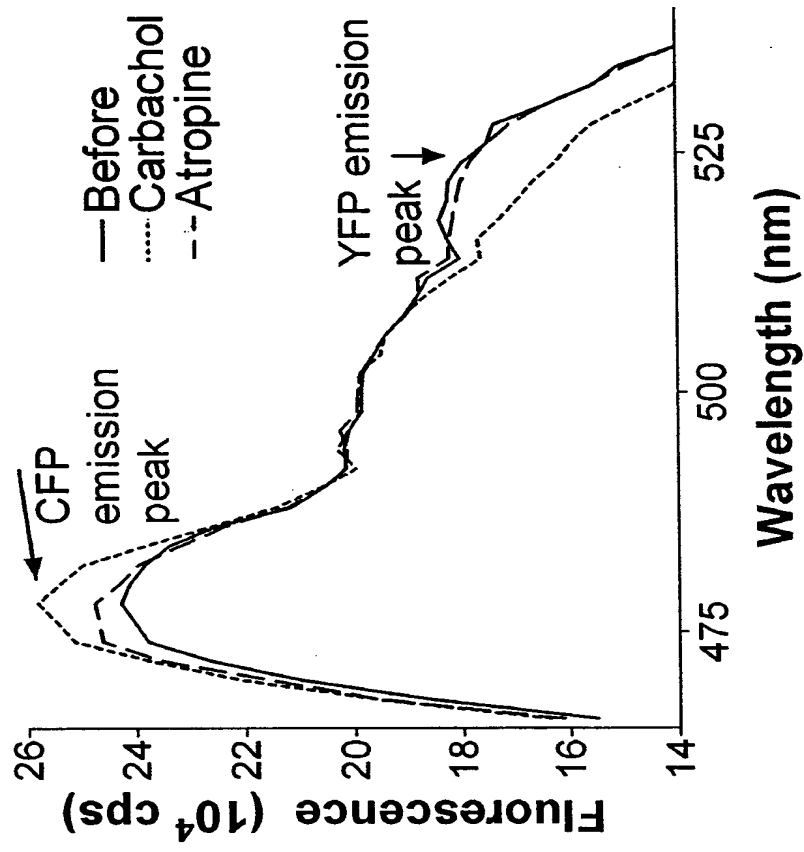


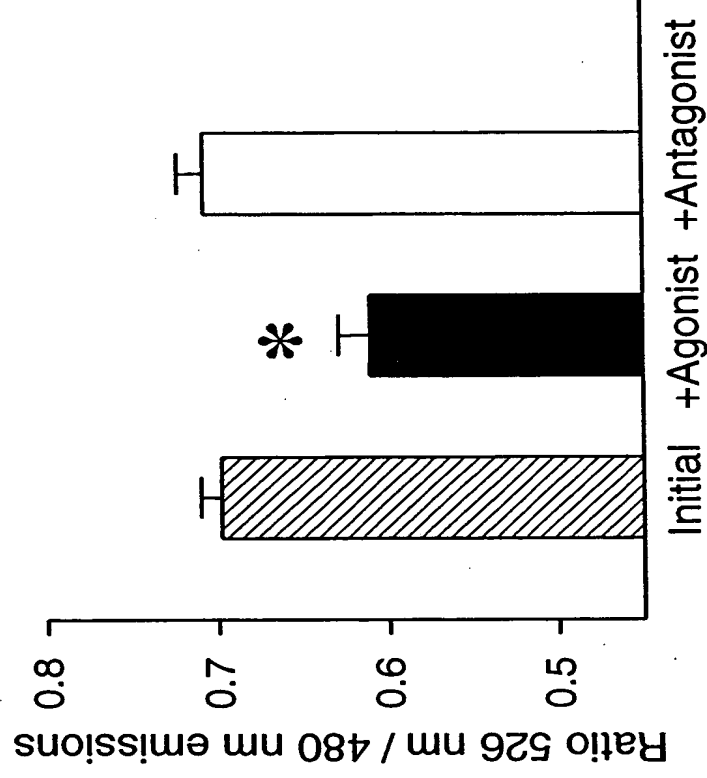
Fig. 19

Spectra from Biosensor cells excited at 433 nm after exposure first to Agonist and then Antagonist



## Fluorometric measurement of Biosensor cell response to agonist and antagonist

Fig. 20



\* Significant ( $p < 0.05$ )

Fig. 21

Fluorometric spectra from Biosensor cells excited at 485 nm

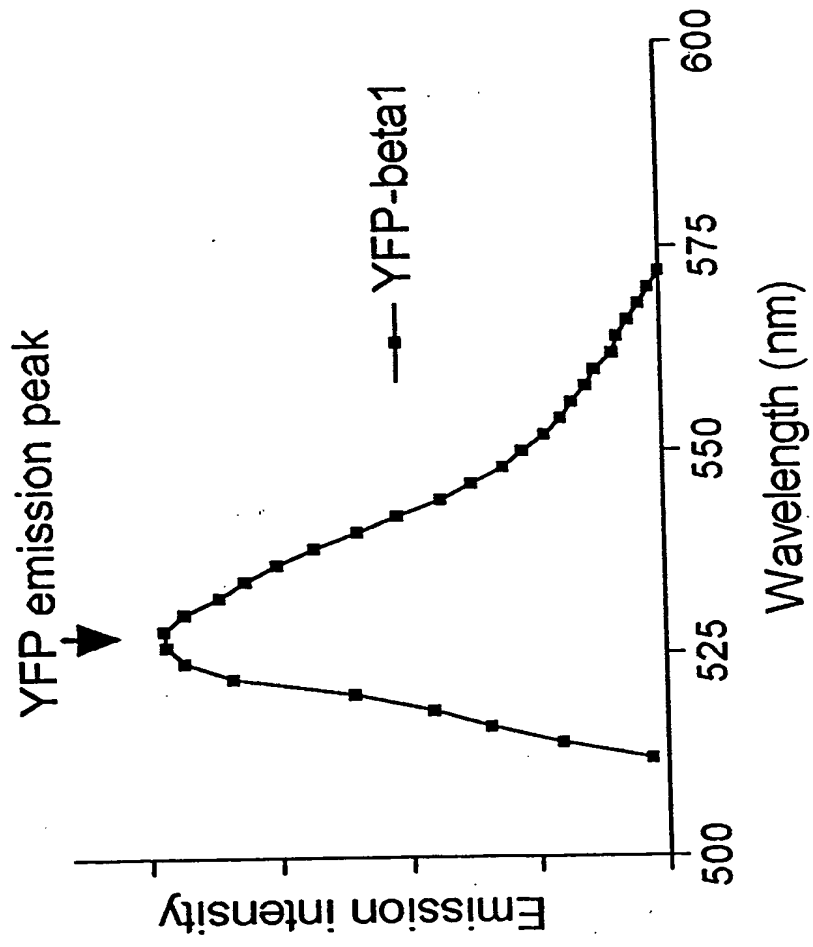


Fig. 22

Spectra from G protein Biosensor Insect Cells excited at 433 nm in response to addition of Agonist and Antagonist

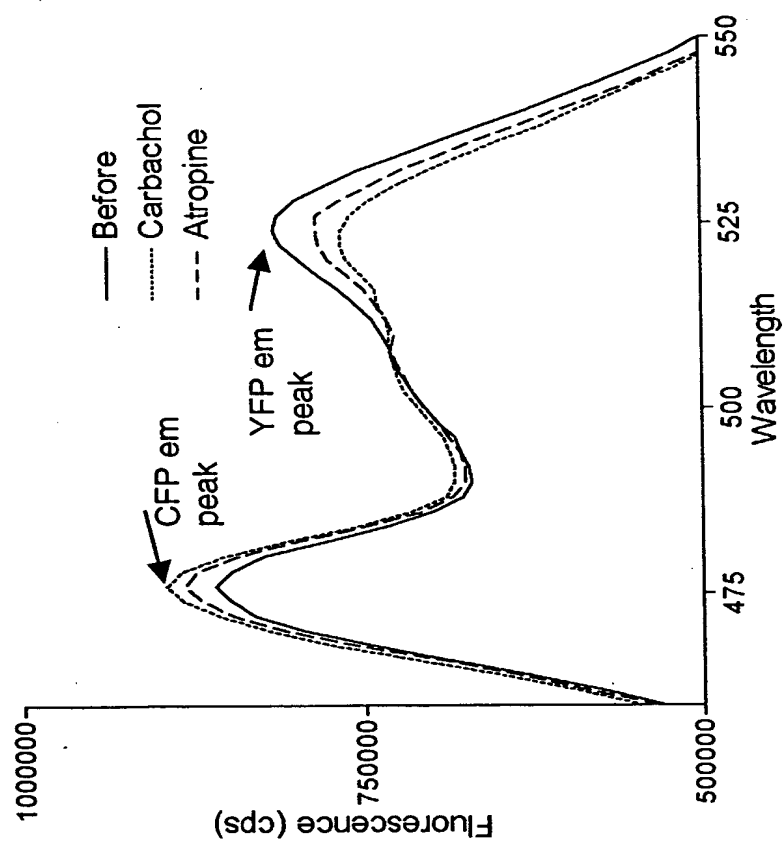


Fig. 23

# Receptor-G protein sensor

R=Receptor

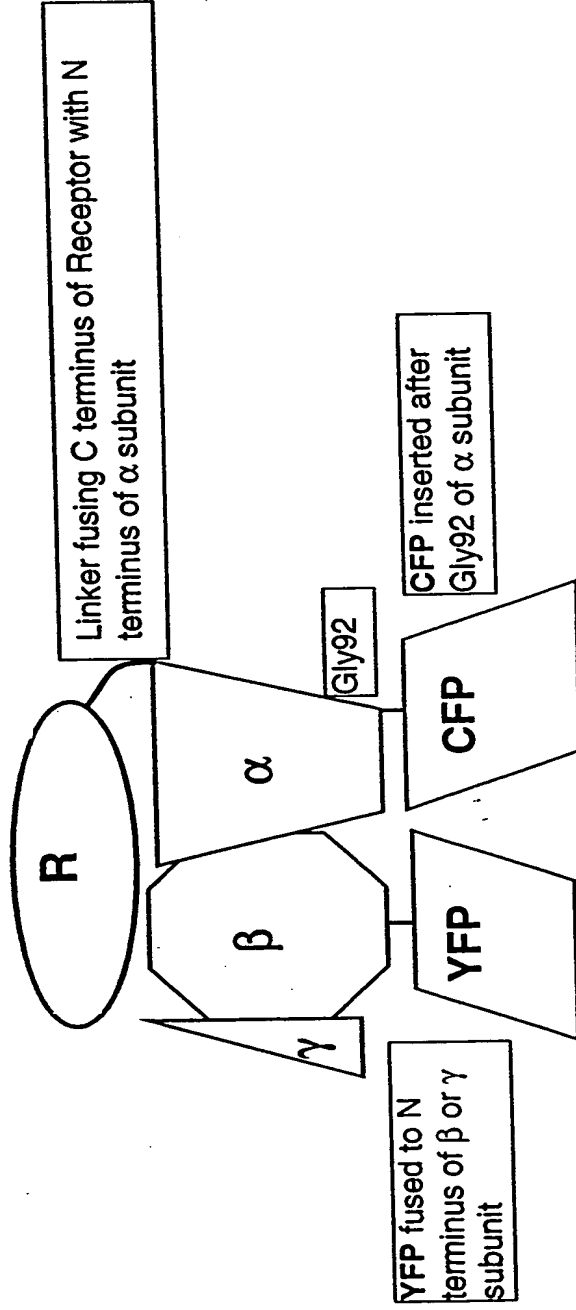
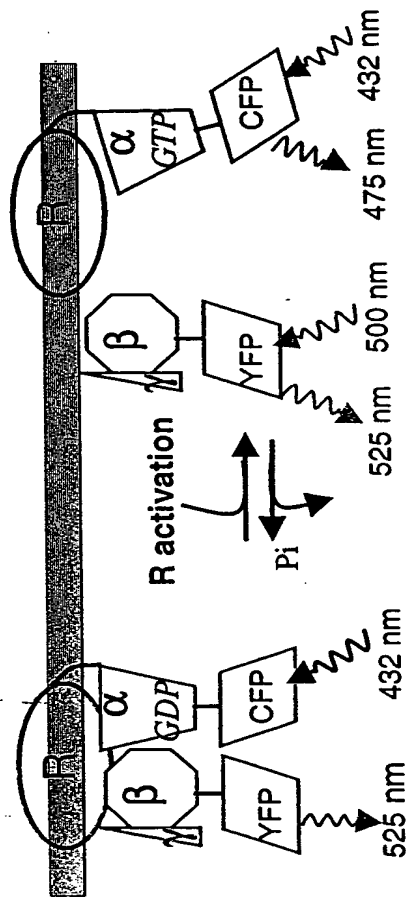




Fig. 24

Activation/deactivation of Receptor-G protein Biosensor Cell  
provides a FRET Signal Response



**Fig. 25** Fluorescence spectra from insect cells containing a biosensor made up of  $\alpha\text{o}$  tethered to the receptor in the presence of an agonist and antagonist

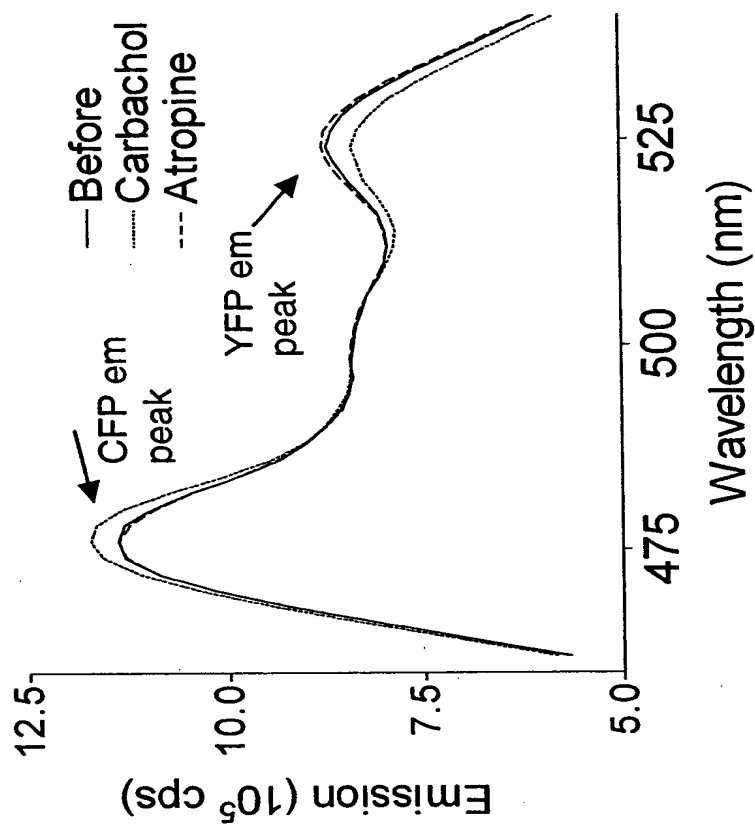


Fig. 26

Images of Fluorescence Emission from Tethered alpha  
Biosensor Cells excited with Defined Spectra

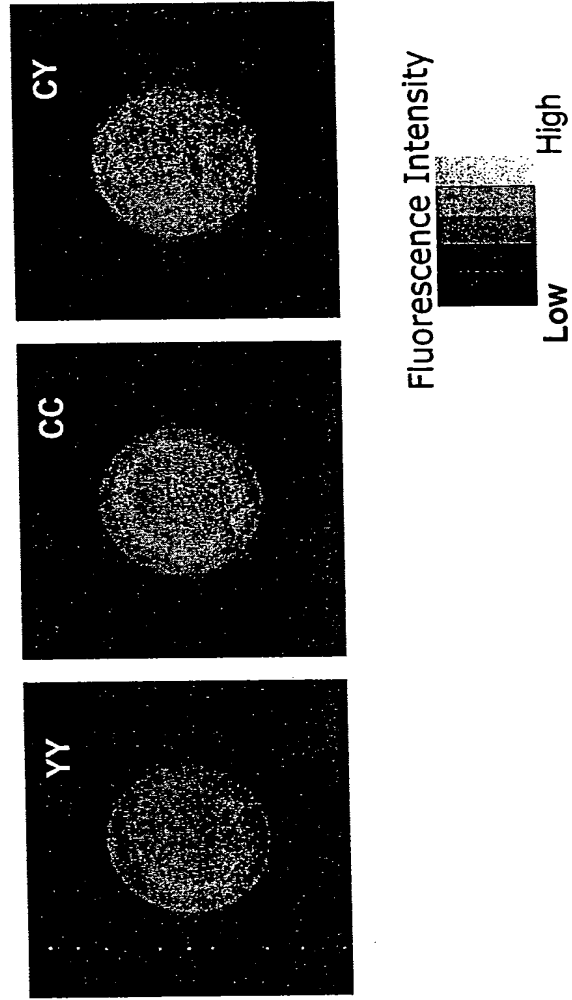
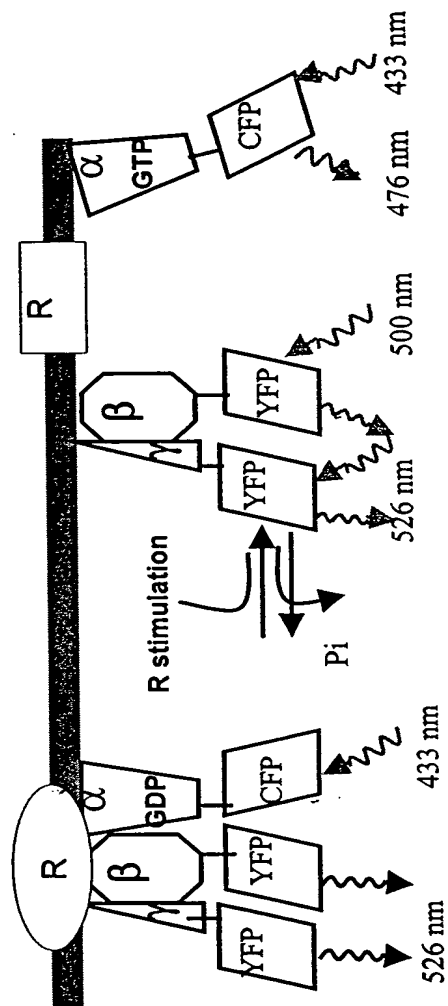


Fig. 27

Biosensor containing YFP tagged  $\beta$  and  $\gamma$  subunits



Mammalian cells containing Biosensor with two YFP molecules attached to both  $\beta$  and  $\gamma$  subunits provides stronger FRET signal change in response to agonist

Fig. 28

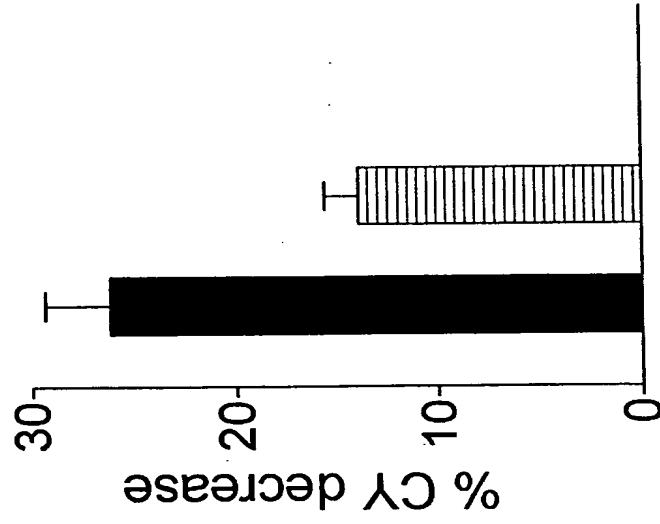


Fig. 29 Biosensor cell responds to repeated exposure to agonist and antagonist molecules with predictable changes in FRET signal intensity

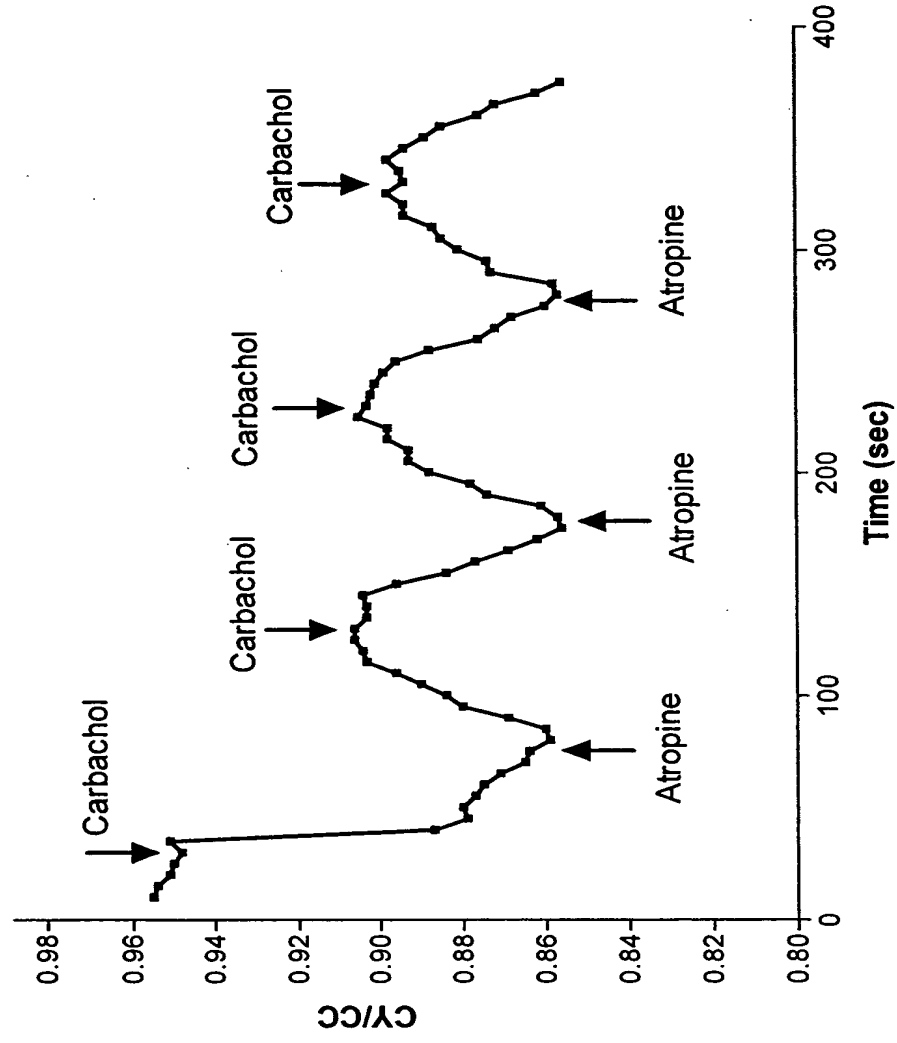


Fig. 30

Go-q sensor is not activated by the M2 receptor unlike Go

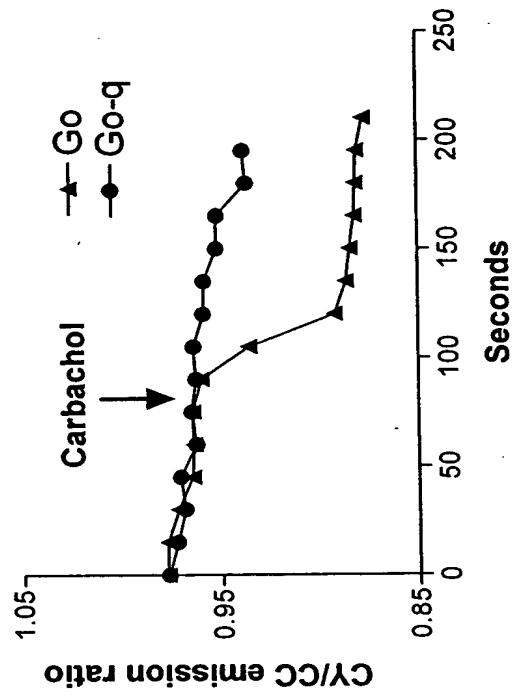


Fig. 31

Go-q sensor is activated by the M3 receptor more effectively than Go sensor

